distinctly improved its circulation, as well as the nutrition of the optic nerve, and that this has been done in a disease in which ordinary medical treatment is practically useless." [Dr. F. seems not to have read the paper of Prof. Nagel, of Tubingen, on the cure of white atrophy of optic nerve, related by Prof. Chisolm in our last number, page 59, successfully treated by hypodermic use of strychnia.] In an appendix to his paper, dated January 24, 1872, Dr. F. refers to a recent work, *Traité d'lEectricité Médicale, par les Docteurs E. Onimus et Ch. Legros*, Paris, 1872, where some cases of optic atrophy treated by galvanism are related.

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63. *Treatment of Conical Cornea by removal of the top of the Cone.*—Mr. C. Bader, of Guy's Hospital, reports (*Lancet*, Jan. 20, 1872) nine cases of conical cornea in which favourable results were obtained by removing the top of the cone.

The operation he describes as follows: 1. Place the patient on a bed as for extraction of cataract, and bring him thoroughly under chloroform.

2. Keep the eyelids open with a stop-speculum, so as to press upon the eyeball as little as possible, and fix the eyeball with the forceps.

3. Immediately before commencing the operation, ascertain the position of the top of the cone by turning the eye to be operated on in different directions, while strong light is thrown upon the cornea with a two-inch convex lens.

4. The subsequent steps of the operation, however they be taken, should tend to remove the top of the cone (the entire thickness of the cornea), so as to cut an opening through the cornea into the aqueous chamber. This opening, somewhat oval-shaped, is from one-twelfth to one-sixteenth of an inch in its longest diameter; it was measured immediately after removal of the apex of the cone, after escape of the aqueous humour, the cornea having collapsed and being in contact with the iris. The pupil, in all cases, was opposite the opening in the cornea; the surface of the lens could be seen bulging into the area of the pupil. In the cases in which the thread was used, the latter caused an indentation in the crystalline lens while passing across the area of the pupil.

5. *Removal of the Top of the Cone.*—A small curved needle, armed with fine white or black silk, or with silver wire (or a gilded, small, sharp hook), is thrust through the cornea in its horizontal diameter, close to the portion of cornea we wish to remove. The point of the needle, after piercing the cornea, is carried horizontally across the aqueous chamber to a spot opposite the point of entrance, and again thrust through the cornea close to the portion of cornea we intend to remove. The aqueous humour escapes before or after passing the point of the needle through the cornea the second time. The needle or sharp hook is left in the cornea until the top of the cone has been removed; it helps to protect and keep back the crystalline lens. The portion of cornea (the top of the cone) situated in front of the needle is then removed as best we can. This part of the operation is somewhat difficult, the cornea being transparent or nearly so, extremely thin and flaccid, and the iris and lens being in contact with the cornea. The head of the needle is held in one hand, and with a cataract-knife, or with a sharp, narrow, lancet-shaped knife, an incision is made through the cornea (a small flap incision, as in flap extraction for cataract). Having made the incision, the needle is let go, the small flap seized with an iris-forceps, and the rest of the cornea (of the cone) removed with the knife or with scissors.

6. *Closure of the Wound (opening) in the Cornea.*—If a sharp hook or a needle without thread has been used for transfixing the cone, it is withdrawn after removal of the cone, and the wound left open. The eyelids of both eyes are then closed, kept bound up and cool with wet lint, and the patient kept in bed for three days; on the third day the use of the eye not operated on is permitted, while the eye operated on is kept bound up until all redness has subsided. If a needle, armed with silk thread, has been used, the needle, after removal of the cone, is drawn out gently by the second opening in the cornea; so that the thread, while passing across the aqueous chamber, the surface of the iris, pupil, and crystalline lens, irritates those parts as little as possible. The opening in the cornea is closed by tying the thread, as is done when uniting

the margins of a wound by a suture. The suture is tied tightly. If it should give a little before completing the knot, it does not signify. The cornea, by the suture, is thrown into numerous folds. This folded condition continued in an extreme degree in one case for nearly four weeks. Having united the wound, one end of the thread is cut off close, the other left about a quarter of an inch long, so as to assist when removing the suture. Both eyes are kept cool and bound up with wet lint. The patient remains in bed. The suture is removed on the appearance of slight chemosis and swelling of the eyelids.

7. *Removal of the Suture.*—The patient being rendered insensible (by methylene), the lids are kept open without pressing upon the eyeball, the surface of the cornea is well cleared from mucus, &c., and the long end of the suture drawn away from the cornea, so as to stretch the suture, and the latter cut through and withdrawn. After this, the lids of both eyes are again carefully kept bound up with wet lint. The use of the eye not operated on is permitted on the third day after removal of the suture. The operated eye is kept bound up, and the lint cool, until all redness of the eyeball has subsided, or nearly so, when an artificial pupil is made.

8. Any other mode of destroying the apex of the cone in conical cornea—for instance, by the galvanic cautery—would, I believe, answer as well as abscission of the cone.

Disadvantages of the Operation.—An opaque spot in the cornea, from where the cone had been removed. The patients were told that there would, after the operation, remain a small white speck on the eye, but that nothing except an operation could improve sight. None of the patients complained of the disfigurement, and all were pleased with the amount of vision obtained.

The necessity of giving an anæsthetic repeatedly. For removal of the suture, and for the artificial pupil, methylene is quite sufficient.

Advantages of the Operation.—In extreme cases of conical cornea a greater improvement of sight is obtained than by any of the known modes of treatment.

No untoward accident occurred in any of the cases.

The after-treatment, after removal of the suture, is very simple. The patient need only be seen at great intervals.

The conical cornea in all cases completely disappeared, and gave way to an abnormally flat cornea.

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64. *Extraction of Cataract by a Peripheral Section of the Iris without injuring the Pupil.*—Dr. Charles Bell Taylor recommends (*Lancet*, Nov. 4, 1871) the following method: "Having separated the lids with the speculum, the eye should be gently turned downwards with a pair of ordinary forceps in the operator's right hand. Having got the globe into a favourable position, it should be fixed by the sharp forceps at about the junction of the upper with the middle third of the cornea; the pointed knife is then entered in the corneosclerotic junction one or two lines from the forceps at the summit of the cornea, pushed well into the anterior chamber, and then, with a gentle sawing motion, carried along the summit until about one-third of the cornea has been incised. The capsule is then carefully divided with Von Graefe's cystitome, having been previously rendered tense, and the eyeball fixed with a pair of ordinary forceps. (It is better to open the capsule at this stage, because bleeding from the wounded iris—and conjunctiva also—at a later period is apt to fill the chamber and render this part of the operation obscure and difficult.) The upper segment of the iris is then seized, and a small piece of the periphery only excised, the pupillary margin and portion of iris attached to it being left untouched and free in the anterior chamber; the lens is then extruded through the gap in the ordinary way, gliding behind the pupil, so that there is no stretching of the sphincter.

"In this way I believe that I have secured all the advantages, in the way of safety and certainty, of an associated iridectomy (which I have already detailed), and at the same time attained that grand desideratum—a central and movable pupil.

"The instruments I employ are a pair of sharp forceps that pierce the sclerotic; a very light speculum (a modification of Von Graefe's); and two knives,